MONSANTO Europe S.A.

Safety Data Sheet
Commercial Product

1. PRODUCT AND COMPANY IDENTIFICATION

1.1. Product identifier

Roundup® Powermax

1.1.1. Chemical name

Not applicable for a mixture.

1.1.2. Synonyms

None.

1.1.3. CLP Annex VI Index No.

Not applicable.

1.1.4. C&L ID No.

Not available.

1.1.5. EC No.

Not applicable for a mixture.

1.1.6. REACH Reg. No.

Not applicable for a mixture.

1.1.7. CAS No.

Not applicable for a mixture.

1.2. Company/(Sales office)

MONSANTO Europe S.A.
Haven 627, Scheldelaan 460, B-2040
Antwerp, Belgium
Telephone: +32 (0)3 568 51 11
Fax: +32 (0)3 568 50 90
E-mail:
safety.datasheet@monsanto.com

1.3. Emergency numbers

Telephone: Belgium +32 (0)3 568 51 23

2. HAZARDS IDENTIFICATION

2.1. Classification

2.1.1. Classification according to Regulation (EC) No. 1272/2008 [CLP]

Not classified as dangerous.

2.1.2. National classification - U.K.

Not classified as dangerous.

National classification/labeling following the EU Dangerous Preparations' Directive 1999/45/EC. - U.K.

R52/53	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
S57	Use appropriate containment to avoid environmental contamination.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

2.2.1. Precautionary statement/statements

P234	Keep only in original container

2.2.2. Supplemental hazard information (EU)

EUH401	To avoid risks to human health and the environment, comply with the

instructions for use.

2.2.3. Precautionary statement/statements U.K.

P234 Keep only in original container

2.3. Other hazards

0% of the mixture consists of ingredient/ingredients of unknown acute toxicity.
0% of the mixture consists of ingredient/ingredients of unknown hazards to the aquatic environment.

2.3.1. Potential environmental effects

Not expected to produce significant adverse effects when recommended use instructions are followed.
Not a persistent, bioaccumulative or toxic (PBT) nor a very persistent, very bioaccumulative (vPvB) mixture.

2.4. Appearance and odour (colour/form/odour):

Pale brown /Granules / Chemical

Refer to section 11 for toxicological and section 12 for environmental information.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Active ingredient

Ammonium salt of N-(phosphonomethyl)glycine; {Ammonium salt of glyphosate}

Composition

Components	CAS No.	EC No.	EU Index No. / REACH Reg. No. / C&L ID No.	% by weight (approximate)	Classification
Ammonium salt of glyphosate	40465-66-5		- / - / -	79	Aquatic Chronic - Category 2; H411N; R51/53; { a} N; R51/53; { b}
Surfactant and minor formulating ingredients			- / - / -	20,5	
Sodium sulphite	7757-83-7		- / - / -	0,5	

The specific chemical identity is being withheld because it is trade secret information of Monsanto Company.

Full text of classification code: See section 16.

4. FIRST AID MEASURES

Use personal protection recommended in section 8.

4.1. Description of first aid measures

4.1.1. Eye contact

Immediately flush with plenty of water. If easy to do, remove contact lenses.

4.1.2. Skin contact

Take off contaminated clothing, wristwatch, jewellery. Wash affected skin with plenty of water. Wash clothes and clean shoes before re-use.

4.1.3. Inhalation

Remove to fresh air.

4.1.4. Ingestion

Immediately offer water to drink. Do NOT induce vomiting unless directed by medical personnel. If symptoms occur, get medical attention.

4.2. Most important symptoms and effects, both acute and delayed

4.2.1. Potential health effects

Likely routes of exposure: Skin contact, eye contact, inhalation, ingestion
Eye contact, short term: Not expected to produce significant adverse effects when recommended use instructions are followed.
Skin contact, short term: Not expected to produce significant adverse effects when recommended use instructions are followed.
Inhalation, short term: Not expected to produce significant adverse effects when recommended use instructions are followed.
Single ingestion: Not expected to produce significant adverse effects when recommended use instructions are followed.

4.2.2. Medical conditions aggravated by exposure

Hypersensitivity to sulphiting agents.
Note: A very small percentage of particularly sensitive people may suffer skin or respiratory reactions.

4.3. Indication of any immediate medical attention and special treatment needed

4.3.1. Advice to doctors

This product is not an inhibitor of cholinesterase.

4.3.2. Antidote

Treatment with atropine and oximes is not indicated.

5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media

5.1.1. Recommended: Water, foam, dry chemical, carbon dioxide (CO2)

5.2. Special hazards

5.2.1. Unusual fire and explosion hazards

Minimise use of water to prevent environmental contamination.
Environmental precautions: see section 6.

5.2.2. Hazardous products of combustion

Carbon monoxide (CO), phosphorus oxides (PxOy), nitrogen oxides (NOx), sulphur oxides (SOx)

5.3. Fire fighting equipment

Self-contained breathing apparatus. Equipment should be thoroughly decontaminated after use.

5.4. Flash point

Not applicable.

6. ACCIDENTAL RELEASE MEASURES

Use handling recommendations in Section 7 and personal protection recommendations in Section 8.

6.1. Personal precautions

Use personal protection recommended in section 8.

6.2. Environmental precautions

Keep out of drains, sewers, ditches and water ways. Do NOT contaminate water when disposing of rinse waters.

6.3. Methods for cleaning up

SMALL QUANTITIES: Flush spill area with water. LARGE QUANTITIES: Dig up heavily contaminated soil. Collect in containers for disposal. Refer to section 7 for types of containers. Flush residues with small quantities of water. Minimise use of water to prevent environmental contamination.

Refer to section 13 for disposal of spilled material.

7. HANDLING AND STORAGE

Good industrial practice in housekeeping and personal hygiene should be followed.

7.1. Precautions for safe handling

Avoid contact with eyes.
When using do not eat, drink or smoke.
Wash hands thoroughly after handling or contact.
Wash contaminated clothing before re-use.
Thoroughly clean equipment after use.
Do not contaminate drains, sewers and water ways when disposing of equipment rinse water.
Refer to section 13 of the safety data sheet for disposal of rinse water.
Emptied containers retain vapour and product residue.
FOLLOW LABELLED WARNINGS EVEN AFTER CONTAINER IS EMPTIED.

7.2. Conditions for safe storage

Compatible materials for storage: stainless steel, aluminium, fibreglass, plastic, glass lining
Keep out of reach of children.
Keep away from food, drink and animal feed.
Keep only in the original container.
Keep container dry.
Keep container off wet floors.
Minimum shelf life: 2 years.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Airborne exposure limits

Components	Exposure Guidelines
Ammonium salt of glyphosate	No specific occupational exposure limit has been established.
Surfactant and minor formulating ingredients	No specific occupational exposure limit has been established.
Sodium sulphite	No specific occupational exposure limit has been established.

8.2. Engineering controls

No special requirement when used as recommended.

8.3. Recommendations for personal protective equipment

8.3.1. Eye protection:

If there is significant potential for contact:Wear dust goggles.

8.3.2. Skin protection:

Wear chemical resistant gloves.
If there is significant potential for contact: Wear chemical resistant clothing/footwear.

8.3.3. Respiratory protection:

No special requirement when used as recommended.

When recommended, consult manufacturer of personal protective equipment for the appropriate type of equipment for a given application.

9. PHYSICAL AND CHEMICAL PROPERTIES

These physical data are typical values based on material tested but may vary from sample to sample. Typical values should not be construed as a guaranteed analysis of any specific lot or as specifications for the product.

Colour/colour range:	Pale brown
Odour:	Chemical
Form:	Granules
Physical form changes (melting, boiling, etc.):	
Melting point:	No data.
Flash point:	Not applicable.
Explosive properties:	No explosive properties
Auto ignition temperature:	Does not self-ignite.
Self-accelerating decomposition temperature (SADT):	No data.
Oxidizing properties:	none
Specific gravity:	Not applicable.
Vapour pressure:	No significant volatility.
Vapour density:	Not applicable.
Evaporation rate:	Not applicable.
Dynamic viscosity:	Not applicable.
Kinematic viscosity:	Not applicable.
Density:	0,55 g/cm3; (loose bulk density)
Solubility:	Water: Soluble
pH:	3,8 @ 20 °C @ 10 g/l
Partition coefficient:	log Pow: -3,02 @ 25 °C (glyphosate)

10. STABILITY AND REACTIVITY

10.1. Reactivity
Reacts with galvanised steel or unlined mild steel to produce hydrogen, a highly flammable gas that could explode.

10.2. Stability
Stable under normal conditions of handling and storage.

10.3. Possibility of hazardous reactions
Reacts with galvanised steel or unlined mild steel to produce hydrogen, a highly flammable gas that could explode.

10.4. Incompatible materials
Incompatible materials for storage: galvanised steel, unlined mild steel
Compatible materials for storage: see section 7.2.

10.5. Hazardous decomposition
Thermal decomposition: Hazardous products of combustion: see section 5.

11. TOXICOLOGICAL INFORMATION

This section is intended for use by toxicologists and other health professionals.

Likely routes of exposure: Skin contact, eye contact, inhalation, ingestion

All tests were conducted following OECD guidelines for Good Laboratory Practices (GLP). Data obtained on product and components are summarized below.

Acute oral toxicity

Rat, LD50 (Method: Up-and-down procedure (OECD 425)): > 5.000 mg/kg body weight
No mortality.

Acute dermal toxicity

Rat, LD50: > 5.000 mg/kg body weight
No mortality.

Acute inhalation toxicity

Rat, LC50, 4 hours, aerosol:
No 4-hr LC50 at the maximum tested concentration. No mortality. For purposes of the inhalation test, product was artificially aerosolized. Since this material will not become aerosolized to a hazardous concentration during transport, it is classified as non-hazardous under the transportation regulations in accordance with 2.6.2.2.4.7(b) and (c) of the UN Recommendations on the Transport of Dangerous Goods. This product is not aerosolized during handling or use and is therefore not classified as hazardous under the Dangerous Preparation Directive 1999/45/EC This product is not aerosolized during handling or use and is therefore not classified as hazardous under the CLP Regulation (EC 1272/2008).

Skin irritation

Rabbit, 3 animals, OECD 404 test:
Redness, individual EU scores: 1,00; 1,00; 1,00
Swelling, individual EU scores: 0,33; 0,33; 0,33
Days to heal: 3
Slightly irritating to skin but not sufficient for classification.

Eye irritation

Rabbit, 3 animals, OECD 405 test:
Conjunctival redness, individual EU scores: 1,33; 0,67; 1,33
Conjunctival swelling, individual EU scores: 0,33; 0,33; 0,67
Corneal opacity, individual EU scores: 0,00; 0,00; 0,00
Iris lesions, individual EU scores: 0,00; 0,00; 0,00
Days to heal: 3
Slightly irritating to eyes but not sufficient for classification.

Skin sensitization

Guinea pig, 9-induction Buehler test:
Positive incidence: 0 %
Negative.

N-(phosphonomethyl)glycine; { glyphosate}

Mutagenicity

Not mutagenic.

Repeated dose toxicity

Rabbit, dermal, 21 days:
NOAEL toxicity: > 5.000 mg/kg body weight/day
Target organs/systems: none
Other effects: none

Rat, oral, 3 months:
NOAEL toxicity: > 20.000 mg/kg diet
Target organs/systems: none
Other effects: none

Chronic effects/carcinogenicity

Rat, oral, 24 months:
NOAEL toxicity: ~ 8.000 mg/kg diet
Target organs/systems: eyes
Other effects: decrease of body weight gain, histopathologic effects
NOEL tumour: > 20.000 ppm
Tumours: none

Toxicity to reproduction/fertility

Rat, oral, 2 generations:
NOAEL toxicity: 10.000 ppm
NOAEL reproduction: > 30.000 mg/kg diet
Target organs/systems in parents: none
Other effects in parents: decrease of body weight gain
Target organs/systems in pups: none
Other effects in pups: decrease of body weight gain

Effects on offspring only observed with maternal toxicity.

Developmental toxicity/teratogenicity

Rat, oral, 6 - 19 days of gestation:
NOAEL toxicity: 1.000 mg/kg body weight
NOAEL development: 1.000 mg/kg body weight
Other effects in mother animal: decrease of body weight gain, decrease of survival
Developmental effects: weight loss, post-implantation loss, delayed ossification
Effects on offspring only observed with maternal toxicity.

Rabbit, oral, 6 - 27 days of gestation:
NOAEL toxicity: 175 mg/kg body weight
NOAEL development: 175 mg/kg body weight
Target organs/systems in mother animal: none
Other effects in mother animal: decrease of survival
Developmental effects: none

Sodium sulphite

EXPERIENCE WITH HUMAN EXPOSURE

Eye contact, excessive, occupational:
Eye effects: irritation

Skin contact, excessive, occupational:
Skin effects: irritation, sensitization in susceptible individuals

Inhalation, excessive, occupational:
Respiratory effects: Respiratory sensitization, irritation, asthma

Ingestion, short term, case report(s):
Gastro-intestinal effects: irritation

Ingestion, excessive, case report(s):
Gastro-intestinal effects: diarrhoea, abdominal pain
Cardiovascular effects: decreased blood pressure (hypotension)

12. ECOLOGICAL INFORMATION

This section is intended for use by ecotoxicologists and other environmental specialists.

Data obtained on product and components are summarized below.

Aquatic toxicity, fish

Zebra fish (Brachydanio rerio):
Acute toxicity, 96 hours, static, EC50: 102 mg/L

Aquatic toxicity, invertebrates

Water flea (Daphnia magna):
Acute toxicity (limit test), 48 hours, static, EC50: > 100 mg/L

Aquatic toxicity, algae/aquatic plants

Green algae (Pseudokirchneriella subcapitata):
Acute toxicity, 72 hours, ErC50 (growth rate): 51 mg/L

Green algae (Pseudokirchneriella subcapitata):
Acute toxicity, 72 hours, NOEC: 10 mg/L

Avian toxicity

Japanese quail (Coturnix coturnix japonica):
Acute oral toxicity (limit test), single dose, LD50: > 2.000 mg/kg body weight

Arthropod toxicity

Honey bee (Apis mellifera):
Contact, 48 hours, LD50: > 100 µg/bee

Honey bee (Apis mellifera):
Oral, 48 hours, LD50: > 104,8 µg/bee

Soil organism toxicity, invertebrates

Earthworm (Eisenia foetida):
Acute toxicity (limit test), 14 days, LC50: > 1.000 mg/kg dry soil

Soil organism toxicity, microorganisms

Nitrogen and carbon transformation test:

3,5 kg/ha, 28 days: Less than 25% effect on nitrogen or carbon transformation processes in soil.

N-(phosphonomethyl)glycine; { glyphosate}

Avian toxicity

Bobwhite quail (Colinus virginianus):

Dietary toxicity, 5 days, LC50: > 4.640 mg/kg diet

Mallard duck (Anas platyrhynchos):

Dietary toxicity, 5 days, LC50: > 4.640 mg/kg diet

Bobwhite quail (Colinus virginianus):

Acute oral toxicity, single dose, LD50: > 3.851 mg/kg body weight

Bioaccumulation

Bluegill sunfish (Lepomis macrochirus):

Whole fish: BCF: < 1

No significant bioaccumulation is expected.

Dissipation

Soil, field:

Half life: 2 - 174 days

Koc: 884 - 60.000 L/kg

Adsorbs strongly to soil.

Water, aerobic:

Half life: < 7 days

13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

13.1.1. Product

Keep out of drains, sewers, ditches and water ways. Follow all local/regional/national/international regulations on waste disposal. Follow current edition of the General Waste, Landfill, and Burning of Hazardous Waste Directives; the EU List of Waste; and the Shipment of Waste Regulation. According to the manufacturer self-classification, following Regulation (EC) No. 1272/2008 [CLP], the product can be disposed as a non-hazardous industrial waste. Disposal in a waste incinerator with energy recovery is recommended.

13.1.2. Container

Follow all local/regional/national/international regulations on waste disposal, packaging waste collection/disposal. Follow current edition of the General Waste, Landfill, and Burning of Hazardous Waste Directives; the EU List of Waste; and the Shipment of Waste Regulation. Do not re-use bags. Empty and shake the bag; inspect for emptiness/cleanliness. Empty inspected bags can be disposed of as non hazardous industrial waste. Store for collection by approved waste disposal service. Recycle if appropriate facilities/equipment available. Recycle the non-hazardous bag only when a proper control on the end use of the recycled plastic is possible. Suitable for industrial grade recycling only. Do NOT recycle plastic that could end in any human or food contact application. The empty plastic bag meets the requirements for energy recovery. Disposal in a incinerator with energy recovery is recommended.

Use handling recommendations in Section 7 and personal protection recommendations in Section 8.

14. TRANSPORT INFORMATION

The data provided in this section is for information only. Please apply the appropriate regulations to properly classify your shipment for transportation.

Not regulated for transport under ADR/RID, IMO, or IATA/ICAO Regulations

15. REGULATORY INFORMATION

15.1. Other Regulatory Information

SP1: Do not contaminate water with the product or its container.

15.2. Chemical Safety Assessment

A Chemical Safety Assessment per Regulation (EC) No. 1907/2006 is not required and has not been performed.

A Risk Assessment has been performed under Directive 91/414/EC.

16. OTHER INFORMATION

The information given here is not necessarily exhaustive but is representative of relevant, reliable data.
Follow all local/regional/national/international regulations.
Please consult supplier if further information is needed.
This Safety Data Sheet has been prepared following the Regulation (EC) No. 1907/2006 (Annex II) as last amended by Regulation (EC) No. 453/2010
In this document the British spelling was applied.
Data provided in this Safety Data Sheet are for the product as supplied unless otherwise indicated.

Classification of components

Components	Classification
Ammonium salt of glyphosate	Aquatic Chronic - Category 2 H411 Toxic to aquatic life with long lasting effects. N - Dangerous for the environment R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. N - Dangerous for the environment R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Surfactant and minor formulating ingredients	
Sodium sulphite	

Endnotes:
{ a} EU label (manufacturer self-classification)
{ b} EU label (Annex I)
{ c} EU CLP classification (Annex VI)
{ d} EU CLP (manufacturer self-classification)

Full denomination of most frequently used acronyms. BCF (Bioconcentration Factor), BOD (Biochemical Oxygen Demand), COD (Chemical Oxygen Demand), EC50 (50% effect concentration), ED50 (50% effect dose), I.M. (intramuscular), I.P. (intraperitoneal), I.V. (intravenous), Koc (Soil adsorption coefficient), LC50 (50% lethality concentration), LD50 (50% lethality dose), LDLo (Lower limit of lethal dosage), LEL (Lower Explosion Limit), LOAEC (Lowest Observed Adverse Effect Concentration), LOAEL (Lowest Observed Adverse Effect Level), LOEC (Lowest Observed Effect Concentration), LOEL (Lowest Observed Effect Level), MEL (Maximum Exposure limit), MTD (Maximum Tolerated Dose), NOAEC (No Observed Adverse Effect Concentration), NOAEL (No Observed Adverse Effect Level), NOEC (No Observed Effect Concentration), NOEL (No Observed Effect Level), OEL (Occupational Exposure Limit), PEL (Permissible Exposure Limit), PII (Primary Irritation Index), Pow (Partition coefficient n-octanol/water), S.C. (subcutaneous), STEL (Short-Term Exposure Limit), TLV-C (Threshold Limit Value-Ceiling), TLV-TWA (Threshold Limit Value - Time Weighted Average), UEL (Upper Explosion Limit)

Safety Data Sheet (SDS) Annex

Chemical Safety Report:
Read and follow label instructions.

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